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ARS
Science
Hall of Fame

September 11, 2013



**Agricultural Research Service
U.S. Department of Agriculture**

A special website is available that features photographs and biographies of all ARS Science Hall of Fame inductees since the inaugural year of 1986. Special features include browse and search functions and video clips from interviews with some members of the Hall of Fame.

Please visit www.ars.usda.gov/careers/hof/

Agricultural Research Service SCIENCE HALL OF FAME

The ARS Science Hall of Fame was inaugurated in 1986. We determined that each succeeding year, one or more present or former scientists with the Agricultural Research Service could be selected, subject to the following criteria:

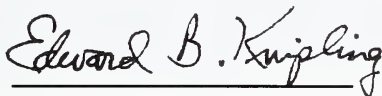
The selectee made widely recognized impact on agricultural research by the solution of a significant agricultural problem through research.

The selectee is a person whose scientific accomplishments and stature continue to affect the agricultural research community and/or influence the development of science-based agricultural policy.

The selectee's character and record of achievement have brought major recognition and credibility to ARS and/or USDA, and are worthy of emulation by younger agricultural scientists.

The selectee's achievements must be or have been nationally and/or internationally recognized by peers in the scientific community.

Today we honor three outstanding scientists by inducting them into the Science Hall of Fame. A plaque citing the achievements of each will be added to the permanent exhibit in the George Washington Carver Center, Beltsville, Maryland.

A handwritten signature in cursive script that reads "Edward B. Knipling". The signature is written in black ink and is positioned above a horizontal line.

Edward B. Knipling
Administrator



————— 2 0 1 3 —————
SCIENCE HALL OF FAME

Rufus L. Chaney

Senior Research Agronomist
Environmental Management and Byproduct Utilization Laboratory
Beltsville, Maryland

For internationally recognized research and applications of science leading to concepts, management, and regulatory actions reducing risks to human health and environmental quality.

Rufus L. Chaney is an international expert at assessing the health and environmental risks posed by trace metals in contaminated soils, and in biosolids and manure amendments for soils, which is critical to ensuring the safety and sustainability of crop production systems and export crops. His guidance to the U.S. Environmental Protection Agency has helped to ensure development of standards for biosolids and byproducts used on agricultural fields. He developed innovative ways to revegetate and revitalize barren toxic Superfund sites, and to phytoextract soil nickel and cadmium using rare high-accumulator plants.

He developed a screening method to evaluate iron deficiency chlorosis in soybeans that has helped soybean breeders improve varieties and reduce chlorosis-related losses. The methods and reagents he developed for studying iron uptake in plants are now commonly used in human nutrition studies. He also identified soils that helped U.S. sunflower producers address European concerns about cadmium levels in sunflowers, ensuring continuation of a major export crop. He provided corresponding expertise and research when similar concerns were raised about U.S. flax and durum wheat.

Chaney is a recipient of numerous awards including the Presidential Rank Meritorious Senior Professional Award and the International Phytotechnology Society's Gordon Award for career achievement in phytoremediation. He also is a Fellow of the American Association for the Advancement of Science, the American Society of Agronomy, and the Soil Science Society of America.



2 0 1 3

SCIENCE HALL OF FAME

Sarah Hake

Center Director
Plant Gene Expression Center
Albany, California

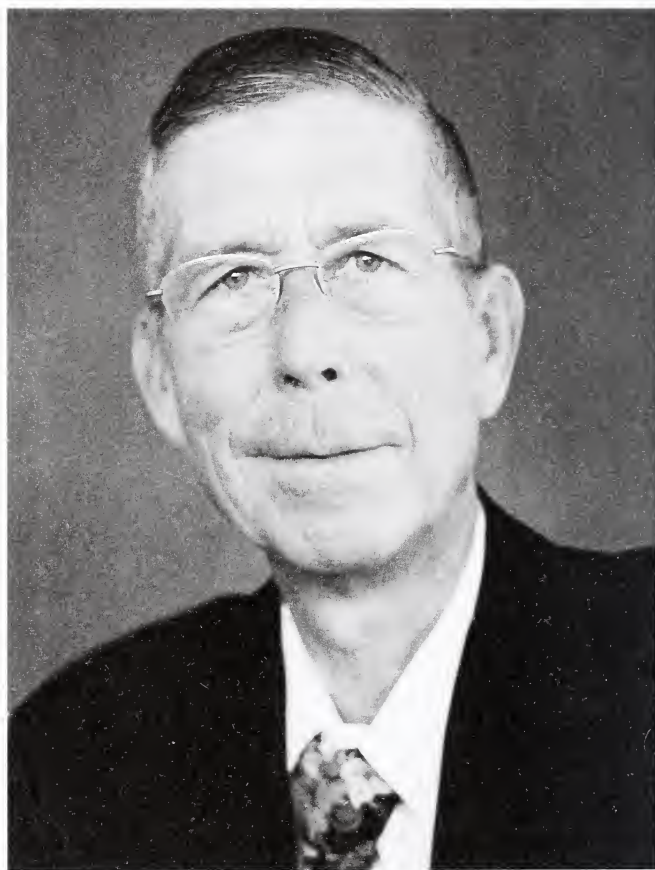
For pioneering research and leadership in developmental biology leading to the discovery and elucidation of genes that regulate plant architecture and agricultural productivity.

Sarah Carter Hake is recognized internationally for scientific breakthroughs that have enhanced desirable traits in plants and advanced our fundamental knowledge of plant architecture and plant science. She was the first scientist to clone a type of developmental gene using a transposable or “jumping” gene, and the first to identify a class of genes in plants that activate a cascade of other genes. The discovery of these influential “homeobox” genes in plants was a surprise that created a whole new subfield of plant genomic studies.

In other work focused on plant mechanisms, she showed that these homeobox proteins move through specialized holes in cell walls to influence the activity of adjacent cells, an achievement considered groundbreaking and cited thousands of times by scientists. Her work in leaf architecture and flower spike development in maize also put her at the forefront of plant biology.

She has co-authored a textbook used in more than 60 universities and written more than 100 scientific papers, and her work has been cited more than 4,000 times. She is a member of the National Academy of Sciences, a Fellow of the American Association for the Advancement of Science, and a winner of the Hales Award, the most prestigious award given by the American Society of Plant Biologists.

She also has been invited to speak at numerous international conferences and served as a co-founder of a program established by the European Union to promote the development of sustainable biofuels and bioproducts.



SCIENCE HALL OF FAME

David W. Ramming

Research Horticulturist (Retired)

San Joaquin Valley Agricultural Sciences Center

Parlier, California

For pioneering research and leadership in the development of superior table grape, raisin, and stone fruit cultivars responsible for U.S. industry growth and consumer satisfaction.

David W. Ramming is an international leader in developing successful varieties of table grapes, raisins, and stone fruits, and he has been instrumental in solving problems and developing technologies that address a number of grower concerns. He is responsible for developing 40 new varieties of table grapes, raisin grapes, peaches, apricots, and other stone fruits.

Ramming's 15 varieties of table grapes represent more than half of the table grape production in California. One variety, Crimson Seedless, surpassed all other cultivars in sales in California in 2003 and has since become a major source of production in the United States, Australia, and South America. More than 2.2 million plants of another variety, Scarlet Royal, have been sold since its release in 2005.

He developed varieties of early-ripening raisin grapes that addressed industry concerns about damage from fall rains, and his early- and late-season peaches and nectarines have extended the growing seasons and ensured that producers and consumers have fruit for about two more weeks each year. His Mayfire nectarine also has become the top nectarine in tree sales.

He also led research that led to a plant regeneration system that provides for routine insertion of genes into grapes, speeding up the process for developing improved varieties. The embryo rescue techniques that he developed also have significantly shortened the time required for development of new table grape and raisin grape cultivars. He and his colleagues also found a way to control root knot nematodes in vineyards, a major concern in the industry, by grafting fruitful scion varieties onto resistant rootstocks.

ARS SCIENCE HALL OF FAME

1986

Edward F. Knipling

For pioneering research and leadership in development of the sterile insect technique, which led to the eradication of the screwworm, and of other technologies to suppress and manage insect pests.

1987

Howard L. Bachrach

For pioneering research on the molecular biology of foot-and-mouth disease that led to development of the world's first effective subunit vaccine for any disease of animals or humans through the use of gene splicing.

Myron K. Brakke

For consistent, career-long valuable contributions to the science of virology, particularly plant virology.

Glenn W. Burton

For outstanding achievements in forage and turf science, which have had extraordinary effects on the forage-based cattle industry, the turf industry, and agriculture worldwide.

Wilson A. Reeves

For outstanding research and leadership in the field of textile chemical finishing that have significantly benefited agriculture and consumers.

Earnest R. Sears

For pioneering work in wheat genetics and for discoveries on chromosomal mechanisms that established standards in animal, plant, and human genetics.

Orville A. Vogel

For development of the first useful semidwarf wheats and of innovative production systems that made the Pacific Northwest a major source of soft white wheat, inspired similar research efforts throughout the world, and sparked the Green Revolution.

Cecil H. Wadleigh

For elucidating the mechanisms through which crops respond to salinity and water stress and for inspired planning and leadership that enabled and motivated those who worked with him to expand and make use of knowledge of soils, water, and air and their interactions with plants.

1988

Francis E. Clark

For outstanding research leading to greater understanding of soil, plant, and microbial interactions and of nutrient cycling in terrestrial ecosystems.

Edgar E. Hartwig

For research in soybean breeding and genetics that has been a major factor in soybeans becoming the second most valuable U.S. crop and particularly for developing cultivars that thrive in the South.

Ralph E. Hodgson

For significant contributions to the knowledge of ruminant nutrition and for visionary leadership, both domestic and international, in the animal industries.

Hamish N. Munro

For career-long contributions to the science of nutrition, particularly on the relationship of dietary protein and iron to the health of the elderly, and for promotion of studies on aging.

Jose Vicent-Chandler

For research leading to new and greatly improved production systems for beef, milk, coffee, plantains, and rice for Puerto Rico and Caribbean countries.

1989

Douglas R. Dewey

For world leadership in genetics and taxonomy of the Triticeae tribe of grasses and for development of the cytogenetic basis for creating new grass hybrids.

Theodor O. Diener

For conceptualizing and discovering viroids, for leading research on viroid detection and control, and for inspiring new approaches in the search for causes of several serious diseases affecting plants, livestock, and humans.

Karl H. Norris

For developing principles and instruments using the electromagnetic wave spectrum to make rapid nondestructive measurements for evaluating quality of agricultural products.

John F. Sullivan

For engineering contributions to the food-processing and preservation industries, including development of instant potato flakes and of batch and continuous-explosion puffing.

1990

Theodore C. Byerly

For extraordinary contributions as a scientist, research leader, and administrator to the success of agricultural research programs and advances in U.S. and world agriculture.

Gordon Dickerson

For research contributions widely used by breeders to increase production efficiency of cattle, sheep, swine, and poultry.

Robert W. Holley

For isolation and characterization, including the first nucleotide sequence, of transfer ribonucleic acid (tRNA).

Virgil A. Johnson

For outstanding contributions to development of superior bread wheat cultivars and of improved wheat germplasm and for vigorous promotion of national and international cooperation among wheat breeders.

George F. Sprague

For outstanding contributions to effective methods of hybrid corn breeding and germplasm improvement.

1991

John H. Weinberger

For outstanding lifelong contributions in development of fruit varieties and fruit-breeding technology.

Walter H. Wischmeier

For developing the Universal Soil Loss Equation, which has been widely used for three decades worldwide in conservation and management of our natural resources.

1992

Raymond C. Bushland

For pioneering research leading to screwworm eradication by the sterile insect technique and for research leading to control of typhus vectors.

Lyman B. Crittenden

For significant contributions to retroviral genetics, transgenic animal development, and genome mapping in poultry.

Arnel R. Hallauer

For increasing understanding and use of quantitative genetics in plant breeding, which has led to development of many superior corn hybrids worldwide.

1993

John R. Gorham

For scientific leadership and studies that have resulted in solutions of disease control problems and have advanced the basic knowledge of viral and genetic diseases in humans and animals.

Sterling B. Hendricks

For significant contributions as a chemist, physicist, mathematician, plant physiologist, geologist, and mineralogist.

Clair E. Terrill

For scientific contributions and worldwide leadership in sheep production research.

1994

Charles N. Bollich

In recognition of superlative accomplishments in rice breeding and genetics and their consequent benefits to American agriculture.

Chester G. McWhorter

For outstanding contributions to American agriculture through basic and applied research that has resulted in improved weed-management technology, increased yields, and reduced cost of production.

Malcolm J. Thompson

For career research contributions in the field of insect and plant steroid biochemistry.

1995

Harry Alfred Borthwick

In recognition of contributions in elucidating the importance of photoperiodic mechanisms controlling flowering in plants.

William M. Doane

For initiating, leading, and conducting research that created new and useful products and led to the establishment of new industries based on agricultural raw materials.

Walter Mertz, M.D.

For contributions and leadership in elucidating the importance to health of several trace elements and promoting research on dietary risk factors for chronic disorders.

1996

Fred W. Blaisdell

For pioneering research and development of improved structures for soil and water conservation.

Herbert J. Dutton

For pioneering research leading to the establishment of soybean oil as the predominant edible vegetable oil in the world.

Charles Jackson Hearn

For developing improved orange, grapefruit, and tangerine varieties used extensively by U.S. citrus producers to replace trees killed by the 1980 freezes and to expand the citrus acreage.

1997

Morton Beroza

For major contributions to the development of environmentally compatible insect control strategies through discovery of lures, attractants, repellents, and pheromones.

R. James Cook

For extraordinary research on sustainable approaches to improve wheat health and for leadership in the transfer of information and technology resulting in solutions to agricultural problems.

William L. Ogren

For outstanding leadership and fundamental contributions to photosynthetic carbon metabolism leading to the discovery of new opportunities to improve the efficiency and productivity of crop plants.

1998

Thomas J. Henneberry

For conducting basic and applied individual and team research that has had sustained global impact on development and implementation of integrated pest management systems.

James H. Tumlinson III

For research that led to eradication of the boll weevil from the southeastern United States and the discovery of the chemical basis of plant-insect-parasite interaction.

1999

Allene R. Jeanes

For microbiological, chemical, and engineering research that created urgently needed, life-saving industrial polymers made from agricultural commodities.

Charles W. Stuber

For pioneering the use of molecular markers in identifying, mapping, and manipulating quantitative trait genes.

Richard L. Witter

For outstanding research contributions and leadership in the field of avian tumor viruses.

2000

Virginia H. Holsinger

For research leading to increased use of milk products and for humanitarian efforts in developing nutritious formulations for international food donation programs.

Marvin E. Jensen

For advancements in irrigation scheduling using computer models to estimate soil-water balance and for advancements in evapotranspiration theory.

Harley W. Moon

For contributions to a fundamental understanding of intestinal diseases in livestock and for development of effective control programs for these diseases.

2001

Lawrence A. Johnson

For pioneering research in developing the first useful technology for gender preselection of animal and human offspring and for outstanding contributions to semen preservation and artificial insemination in swine.

William E. Larson

In recognition of a pioneer who respected soil as a natural resource and devoted a research career toward improving its quality.

William L. Mengeling

For outstanding research contributions and leadership in the field of viral diseases of swine.

2002

George Inglett

In recognition of the development of novel, patented food ingredients including Oatrim and Nutrim, which have had a sustained beneficial effect on the American diet.

K. Darwin Murrell

For landmark research on parasites of veterinary and medical importance, especially trichinellosis of swine, and innovative development and leadership of laboratory and agency-level programs that established and advanced objectives of the Agricultural Research Service.

Stuart O. Nelson

For pioneering research on the dielectric properties of agricultural materials, applications of radio-frequency and microwave energy, and electrical measurements for moisture sensing in cereal grains.

2003

Edward B. Bagley

For outstanding research in rheology and food science that generated fundamental understanding of flow mechanics; and for pioneering concepts in super-absorbent materials that resulted in one of the most successful technology transfers in USDA history.

Janice M. Miller

For pioneering research in understanding, diagnosing, and controlling bovine leukemia, transmissible spongiform encephalopathies, and other chronic infectious or zoonotic diseases of ruminants.

2004

Donald K. Barnes

For remarkable contributions to alfalfa breeding and genetics, mentoring of plant breeding students, and service to ARS and the scientific community.

Ruth Rogan Benerito

For applying physical chemistry to solve problems that led to improved procedures and new uses for renewable resources such as cotton, wood, and paper.

Keith E. Gregory

For outstanding research contributions in genetics and breeding of beef cattle and for leadership of ARS research programs.

2005

Charles W. Beard

For outstanding contributions in poultry health research, in professional and organizational leadership, and in developing biocontainment concepts and systems for animal agriculture.

Nelson A. Cox

For lifetime contributions of distinctive research benefitting the poultry industry and public health through development and transfer of technologies that reduced foodborne pathogens, particularly Salmonella and Campylobacter.

Sigmund Schwimmer

For a distinguished career of scientific excellence in enzymology and its application to food science and human food products and quality.

Tien C. Tso

For outstanding research contributions and leadership in plant physiology and phytochemistry and their use to advance plant science.

2006

Wayne W. Hanna

For significant scientific contributions to U.S. food production and the national recreation industries and for related scientific achievements for research on apomixis and interspecific germplasm transfer.

Ray D. Jackson

For elucidating the basis of soil-plant-water-atmosphere relationships and developing innovative methods to assess and manage crop status through remote sensing.

Vernon G. Pursel

For lifetime contributions to genetic and reproductive development of livestock through pioneering research in genetic engineering and semen preservation.

2007

Johnie N. Jenkins

For pioneering leadership, vision, innovative cotton host plant resistance research and technologies, impact on science, and development and mentoring of young scientists.

Dennis Gonsalves

For pioneering research and leadership in plant pathology and biotechnology to increase agricultural productivity and improve human health.

Janet C. King

For national and international leadership and research achievement in human nutrition.

2008

Robert E. Davis

For meritorious and exemplary contributions to the science of plant pathology and for a dedicated career of service to the Agricultural Research Service.

Andrew N. Sharpley

For pioneering nutrient research leading to the development of agricultural management practices and strategies that are used nationally and internationally to protect water quality.

2009

Max J. Paape

In recognition of exceptional research and leadership that enhanced animal and human health through advances in the identification, control, and prevention of bovine mastitis.

J. Neil Rutger

For demonstrating the usefulness of induction, evaluation, and integration of mutants in rice genetics and breeding.

B.A. Stewart

For exceptional research on soil and crop management practices and outstanding leadership of local, national, and international research programs to sustain our natural resources.

2010

Jitender P. Dubey

For pioneering research in identifying and aiding in the control of protozoan diseases in livestock and humans.

Ronald L. Horst

For research on calcium and vitamin D metabolism resulting in strategies to prevent milk fever in dairy cows and for insight into bone disease.

L. Dale Van Vleck

For extraordinary contributions in expanding quantitative genetic and statistical theory and in developing computational procedures that had an impact in genetic improvement programs for livestock worldwide.

2011

Allen R. Dedrick

For national and international impact and leadership in the development and application of technology for efficient use of scarce water resources worldwide.

Ronald Fayer

For scientific leadership of research on parasites of veterinary and medical importance especially protist pathogens affecting food animals and food safety and for leadership of laboratory and agency programs that promoted the objectives of the Agricultural Research Service.

Ronald F. Follett

For outstanding research contributions in the enhancement of soil, water, and air quality.

2012

Larry V. Cundiff

For extraordinary research and outreach contributions having worldwide impact on genetic improvement programs, choice of breeds, and use of crossbreeding systems for beef production.

Donald P. Knowles

For innovative scientific leadership and research to solve serious problems in infectious animal diseases, creation of sustained partnerships, and training of future agricultural scientists.

Kenneth P. Vogel

For contributions to science, perennial grass breeding and genetics, and grassland and bioenergy production systems.

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